

Member ID: _____

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Computer Programming Concepts (390)

REGIONAL 2025

CONCEPT KNOWLEDGE:

Multiple Choice (50 @ 2 points each)

_____ (100 points)

Test Time: 60 minutes

Multiple Choice Questions

Directions: Identify the letter of the choice that best completes the statement or answers the question.

1. What does the && operator do in most programming languages?
 - A. Adds two values
 - B. Performs a logical OR
 - C. Compares two values
 - D. Performs a logical AND
2. What is polymorphism in object-oriented programming?
 - A. Changing the type of a variable
 - B. Allowing objects of different types to be treated as objects of a common super type
 - C. A programming language paradigm
 - D. A type of inheritance
3. Which of the following is a characteristic of an algorithm?
 - A. Must be written in a programming language
 - B. Cannot be executed by a computer
 - C. Must have a clear stopping point
 - D. Requires internet access to run
4. In Python, how do you open a file for reading only?
 - A. `open('file.txt', 'w')`
 - B. `open('file.txt', 'r')`
 - C. `file.open('file.txt')`
 - D. `read('file.txt')`
5. Which data structure automatically allocates and deallocates memory?
 - A. Array
 - B. Stack
 - C. Queue
 - D. Linked List
6. What is encapsulation in OOP?
 - A. The process of combining elements to create a new entity
 - B. A design pattern
 - C. The bundling of data with the methods that operate on that data
 - D. The separation of interface and implementation

7. What does the following Python code snippet accomplish? `num = [x**2 for x in range(10)]`
 - A. Generates a list of numbers from 0 to 9
 - B. Squares each number from 0 to 9 and stores the result in a list
 - C. Counts all even numbers from 0 to 9
 - D. Multiplies each number from 0 to 9 by 2
8. Which principle of structured design reduces complexity by hiding unnecessary details from the user?
 - A. Encapsulation
 - B. Abstraction
 - C. Inheritance
 - D. Polymorphism
9. In object-oriented programming, what does a class define?
 - A. A single object
 - B. The operations that can be performed on data
 - C. The blueprint from which individual objects are created
 - D. A specific type of data structure
10. What is a key feature of sequential file access?
 - A. Data is accessed in a non-linear order
 - B. Files can only be written, not read
 - C. Data is accessed in the order it was added
 - D. Requires special software to read the data
11. How do selection statements work in programming?
 - A. They repeat a block of code multiple times
 - B. They choose between two or more blocks of code to execute based on a condition
 - C. They execute a block of code as long as a condition is true
 - D. They execute each line of code sequentially without branching
12. What does `!=` mean in most programming languages?
 - A. Equal to
 - B. Not equal to
 - C. Less than
 - D. Greater than
13. What concept allows an object to take on many forms?
 - A. Encapsulation
 - B. Abstraction
 - C. Polymorphism

D. Inheritance

14. In the context of programming, what does "syntax" refer to?
- A. The outcome of a program
 - B. The physical hardware a program runs on
 - C. The set of rules that defines the combinations of symbols that are considered to be correctly structured programs
 - D. A type of error that occurs when a program cannot be executed
15. In Java, which of the following correctly creates an instance of a class named Car?
- A. `Car myCar = new Car();`
 - B. `Car myCar;`
 - C. `new Car myCar = Car();`
 - D. `Car myCar = Car.new();`
16. How do you define a constructor in a Java class?
- A. By naming a method after the class and marking it with void
 - B. By naming a method after the class
 - C. By using the new keyword before a method
 - D. By declaring a static method
17. In Python, what does the continue statement do?
- A. Exits the current loop
 - B. Skips the rest of the code inside the loop and starts the next iteration
 - C. Breaks out of the loop and executes the first statement outside the loop
 - D. Continues execution of the program ignoring the loop
18. What is the default access specifier for members of a class in C++?
- A. public
 - B. private
 - C. protected
 - D. internal
19. Which of the following is NOT a valid variable name in Python?
- A. `_myVar`
 - B. `2myVar`
 - C. `myVar_`
 - D. `my_Var`
20. What does the break statement do in a loop?
- A. Pauses the execution of the loop
 - B. Exits the loop and moves to the next statement outside it
 - C. Breaks the program
 - D. Continues to the next iteration of the loop

21. Which of the following is an example of dynamic memory allocation?
- A. Declaring an array of fixed size in C
 - B. Allocating memory using malloc in C
 - C. Defining a static variable
 - D. Declaring a global variable
22. In Java, which keyword is used to inherit a class?
- A. extends
 - B. implements
 - C. super
 - D. this
23. What type of error is detected by the compiler?
- A. Logical error
 - B. Runtime error
 - C. Syntax error
 - D. Semantic error
24. Which of the following is true about an abstract class in Java?
- A. It can be instantiated
 - B. It must contain at least one abstract method
 - C. It cannot contain concrete methods
 - D. It can only contain static methods
25. What is the Big O notation used to describe?
- A. The maximum amount of memory used by an algorithm
 - B. The minimum time needed to complete an algorithm
 - C. The exact time needed to complete an algorithm
 - D. The upper bound of the running time of an algorithm
26. In SQL, what does the INNER JOIN statement do?
- A. Selects all records from both tables as long as there is a match in both tables
 - B. Selects records that have matching values in both tables
 - C. Deletes records from both tables where there is a match
 - D. Updates records in both tables where there is a match
27. How do you declare a variable that should store text in Python?
- A. `int variableName = "Hello"`
 - B. `String variableName = "Hello"`
 - C. `text variableName = "Hello"`
 - D. `variableName = "Hello"`

28. In programming, what is a loop?
- A. A syntax error
 - B. A condition that cannot be reached
 - C. A sequence of instructions that is continually repeated until a certain condition is reached
 - D. A function that calls itself
29. What is an array?
- A. A function in a programming language
 - B. A type of loop
 - C. An error type
 - D. A collection of elements of the same type stored in contiguous memory locations
30. What is exception handling?
- A. Correcting syntax errors in code
 - B. Managing runtime errors in a program
 - C. A loop control mechanism
 - D. A way to increase the speed of code execution
31. In HTML, which tag is used to define a hyperlink?
- A. <link>
 - B. <a>
 - C. <href>
 - D. <hyperlink>
32. What is the purpose of the else clause in Python loops?
- A. To define an additional condition
 - B. To execute a block of code if the loop does not break
 - C. To catch exceptions
 - D. To repeat the loop
33. What is the use of the #include directive in C?
- A. To define constants
 - B. To include the contents of a file in the program
 - C. To declare variables
 - D. To create a comment
34. How is a while loop different from a for loop?
- A. A while loop can only execute a set number of times
 - B. A for loop is used only for iterating over sequences
 - C. A while loop repeats as long as a specified condition is true, whereas a for loop repeats a specific number of times
 - D. There is no difference

35. In object-oriented programming, which of the following best describes inheritance?
- A. The process to hide specific details and only show the essential features of the object.
 - B. A way to construct complex queries.
 - C. The mechanism where a new class is derived from an existing class.
 - D. A method to ensure secure data transmission.
36. Which operator is used in Python to check if two variables are the same object?
- A. ==
 - B. !=
 - C. is
 - D. ===
37. What does the final keyword do in Java?
- A. Initializes a block of code.
 - B. Makes a variable unchangeable.
 - C. Indicates the last method in a class.
 - D. Declares a new data type.
38. In C++, which access specifier allows members of the same class to access private data?
- A. public
 - B. private
 - C. protected
 - D. friend
39. Which SQL statement is used to return only distinct (different) values?
- A. SELECT UNIQUE
 - B. SELECT DISTINCT
 - C. SELECT DIFFERENT
 - D. SELECT ALONE
40. In HTML, what does the tag do?
- A. Makes the text bold
 - B. Inserts an image
 - C. Emphasizes the text, usually by italicizing
 - D. Creates a hyperlink
41. Which of the following is NOT a valid way to declare and initialize an array in Java?
- A. `int arr[] = new int[5];`
 - B. `int[] arr = {1, 2, 3, 4, 5};`
 - C. `int arr[] = {1, 2, 3, 4, 5};`
 - D. `int arr[] = array(1, 2, 3, 4, 5);`

42. What is a key feature of interface in Java?
- A. It can contain static methods only.
 - B. It allows multiple inheritances.
 - C. It can contain instance fields.
 - D. It must be used to create any class in Java.
43. Which of the following data types is NOT commonly supported by programming languages?
- A. String
 - B. Boolean
 - C. Real
 - D. Complex
44. What is the primary purpose of the try statement in exception handling?
- A. To define a block of code to test for errors while it is being executed.
 - B. To execute a block of code regardless of the result.
 - C. To filter specific error types.
 - D. To declare variables that are used in the try block.
45. In Python, what is the output of len ("Hello World!")?
- A. 11
 - B. 12
 - C. 13
 - D. An error
46. Which CSS property is used to change the text color of an element?
- A. font-color
 - B. color
 - C. text-color
 - D. background-color
47. In a relational database, what is a foreign key used for?
- A. To uniquely identify each row in a table.
 - B. To secure the database against unauthorized access.
 - C. To link two tables together.
 - D. To increase the performance of database queries.
48. What does the static keyword do in Java?
- A. It makes a method accessible without creating an instance of the class.
 - B. It prevents a variable from changing.
 - C. It makes a variable unique to each instance of a class.
 - D. It designates a class that cannot be subclassed.

49. Which HTML tag is used to define an input field for entering a password?

- A. <password>
- B. <input type="password">
- C. <pass>
- D. <textfield>

50. What does the map function in Python do?

- A. Applies a given function to all items in an input list.
- B. Maps a network drive to a file system.
- C. Converts data types into a dictionary.
- D. Plots graphical data.